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# China's Growing Timber Imports: Bright Outlook for US Sales

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A Research Paper

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A Research Paper

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This paper was prepared by [Redacted] Office of  
East Asian Analysis, with contributions from [Redacted]  
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OEA, [Redacted]

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## China's Growing Timber Imports: Bright Outlook for US Sales

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### Key Judgments

*Information available  
as of 24 June 1985  
was used in this report.*

China has become a significant importer of logs from the United States since entering the market in 1979. Sales have increased nearly sevenfold over the past four years to nearly \$300 million, and, as a result, the Chinese now account for nearly a quarter of US log exports.

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The increase is a result of two factors: China's need for timber to support its economic modernization program and its desire to rebuild its depleted forests by cutting back annual harvests. These factors create, we believe, a continuing and long-term need for imported logs and, to a much lesser extent, wood products.

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We believe there is a bright future for US timber sales. Competition for high-quality logs—the major US timber export to China—is weak. In addition, China is considering several joint ventures that at least initially will require increased imports. Finally, the timber trade is unlikely to become embroiled in a dispute over a maritime agreement because most timber is carried on third-party ships.

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We do not, however, expect timber sales to grow fast or large enough to offset the drop in grain sales. Chinese port congestion, bureaucratic inefficiency, and Beijing's resistance to increasing purchases of wood products, because of their relatively higher prices, will tend to keep the growth at modest levels through the end of the century.

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***China's Forests***

Forests now cover 115 million hectares, and total timber resources are estimated at some 9 billion cubic meters, according to recent Chinese press reports. Even if all the forest lands contained well-maintained, productive trees, China only would have about 0.1 hectare of forest per person, compared with 1.5 hectares in the United States. The Chinese acknowledge they are well below the world average of 0.9 hectare per individual.

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Moreover, the current forest cover claim may include a large volume of nonharvestable timber. In 1979, the Chinese press claimed that only one-third of China's forests was suitable for commercial logging. And, for a number of years, the Chinese have been complaining about overcutting, bad cutting, and inadequate replanting of forest lands. In replanting, the emphasis had been on quantity and not quality—whatever seeds or seedlings were available were planted and then ignored until cutting time. Then too, it is unclear whether thinning products, which could amount to some 20 percent of volume depending on specie, are included in the 9 billion cubic meters of timber resources. For example, the volume of thinning products is estimated at 14 to 16 percent of the total production volume for Chinese fir, which, according to the Food and Agriculture Organization of the United Nations, makes up one-third of China's newly afforested areas.

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fuel and agricultural needs. In some cases, however, the removal of lower branches for fuel has been excessive, impairing both tree growth and wood quality. According to an article by a Ministry of Forestry employee, China annually harvests and consumes about 70 million cubic meters of firewood, a 27 percent higher volume than that of logs extracted in 1984.

In 1982 China embarked on a major reforestation effort designed to increase the timbered portion of China's land area from 12 to 20 percent. The Minister of Forestry, Yang Zhong, at a recent National Forestry Propaganda Work Meeting in Beijing, stressed the importance of expediting afforestation of barren hills as well as hillside fields with a slope of 25 degrees or more. According to the Chinese press, there are over 66 million hectares in this category

Since 1970, China has afforested annually an average 4.8 million hectares, reaching an alltime high of 6.3 million hectares in 1983, the last year of available data. Only 60 percent of 1983 afforested area, however, was planted to timber-producing species, and many of these will not reach maturity for over 50 years. The remaining portion of afforested area consisted of shelter, fuel, and economic forests that include cash crop fruit trees such as apple, pear, and date as well as oil-bearing trees and shrubs.

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When a stand of trees is thinned, the remaining trees produce larger logs and also provide a number of thinning products because the Chinese use the entire tree—even the litter is picked up. In addition to the harvest of small-diameter logs during the thinning process, large branches are salvaged for pulp with smaller branches and twigs going for fiberboard production. Some leaves and branches support local

In addition to the afforested areas, China also reports a category of "reforested slash areas," which we understand to mean are logged-over areas that have been replanted to timber forests. Hectarage planted to reforested areas increased from 308,000 hectares in 1971 to 509,000 hectares in 1983, with average annual plantings of 406,000 hectares for the period.

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## China's Growing Timber Imports: Bright Outlook for US Sales

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### Timber Sales: A Growing Component of US-Chinese Trade

Since 1980, grain, aircraft, and logs have been the leading US commodities exported to China, accounting for a third to a half of the total value of US sales there (see figure 1). And, while logs account for only a small share of this total, they represent the most dynamic category of commodity sales. As US aircraft sales to China have fluctuated widely and exports of grain have fallen because of China's bumper harvests, log exports have risen dramatically from \$41 million in 1980 to \$277 million last year.

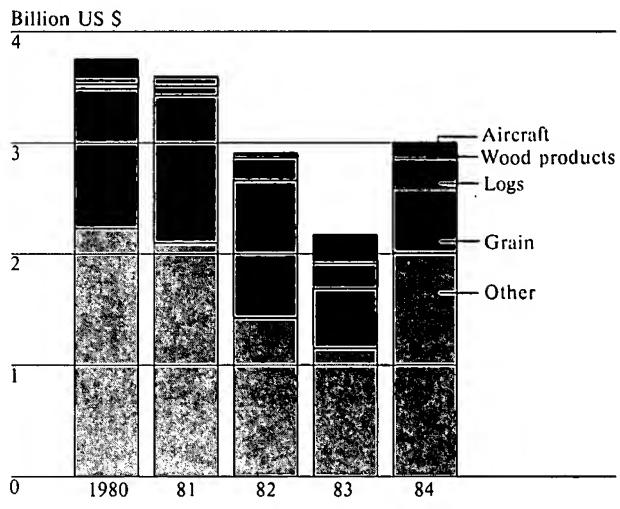
China's entry into the US log market, moreover, has come at a time when other importers are cutting or planning to cut log purchases (see figure 2). Log sales to Japan—the largest US customer—dropped by half to \$643 million in 1984 from \$1,303 million in 1980, a result, according to industry sources, of the lower level of Japanese housing starts over the past few years.<sup>1</sup> South Korean log imports, which have increased since 1982, will probably fall after the completion of facilities for the 1988 Seoul Olympics. With these markets shrinking, China now accounts for nearly a quarter of the value of US log exports, and that share appears likely to expand (see figure 3).

### The Need for Imported Log and Wood Products

The increase in log imports is a result of China's attempts to provide adequate wood products for its economic modernization efforts while reforesting its own land area. After years of overcutting and inadequate replanting, the Chinese are trying to reduce their annual timber harvest. Attempts thus far have been unsuccessful—China has maintained an average annual harvest of 52 million cubic meters over the last seven years, and, in 1984, production reached a record 55 million cubic meters, despite an announced plan to reduce the timber harvest by 10 percent. This year, the Chinese press announced a new 10- to 15-percent

<sup>1</sup> The 50-percent reduction in value of sales to Japan resulted from both a reduction in the number of logs exported and a drop of 35 percent in price over this period. China and South Korea purchase a slightly lower grade log than does Japan (see appendix C).

**Figure 1**  
**Leading US Commodity Exports to  
China by Value, 1980-84<sup>a</sup>**



<sup>a</sup> Free on board (f.o.b.).

Source: US Bureau of Census, Standard International Trade Classification, Revision II.

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harvest reduction goal, but US industry sources believe the new target also will be difficult to achieve because of China's need for timber in its modernization efforts.

Wood products, in fact, play an important role in several key areas of economic modernization—in particular, construction, mining, transportation, and exports. For example, US industry sources consider linerboard and pulp to be basic industries for modernization in developing countries because of their importance in packing goods for domestic and international shipping. According to the General Office of the State Council, commodity damage caused by poor packaging is a chronic cause of dissatisfaction with Chinese

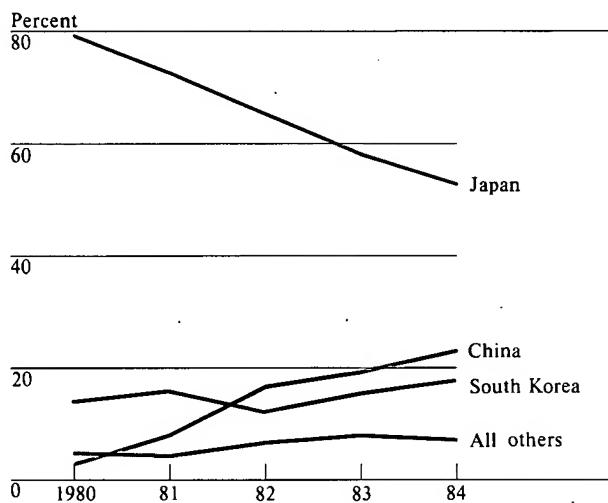
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**Figure 2**  
**US Log Exports to Selected Countries, 1980-84<sup>a</sup>**



<sup>a</sup> Calculated from US \$ value, f.o.b.

Source: US Bureau of Census, Standard International Trade Classification, Revision II.

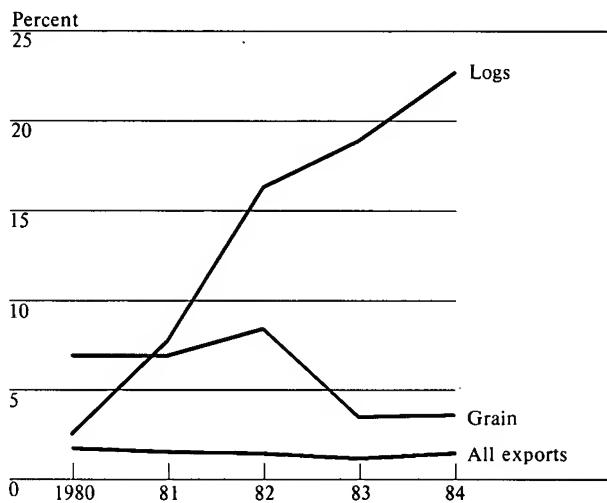
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merchandise; last year inadequate packing caused losses estimated at more than \$3 billion. As a consequence, the Chairman of the China Packaging Technology Association recently noted that corrugated shipping cartons—made from kraft linerboard—are now replacing wood, straw, and bamboo containers to become China's primary packaging material.

China's official news agency recently announced plans for developing an industrial base for producing linerboard, with a production capacity of 200,000 to 300,000 tons by 1990. Although this new industry may require increased imports of woodpulp into the next decade, the Chinese are planning to substitute "cotton straw," which is plentiful and contains about 25-percent long fiber—needed for strength in linerboard—for some of the woodpulp used in the manufacturing process.<sup>2</sup>

<sup>2</sup> Most of the wood pulp imported from the United States contains long fiber. Short fiber imports are used to manufacture such items as writing paper where strength is not important.

**Figure 3**  
**Chinese Share of US Export Market, 1980-84<sup>a</sup>**



<sup>a</sup> Calculated from US \$ value, f.o.b.

Source: US Bureau of Census, Standard International Trade Classification, Revision II.

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In addition to wood products such as linerboard, China uses logs to support tourist, transportation, and other industries. US logs, largely Douglas fir and some hemlock, are cut into lumber grades. Better grade lumber is used for furniture, cabinets, windows, and doors; much of this,

is destined for the tourist industry and government agencies. The Chinese use rough lumber for machine footings and packing cases, while larger pieces of Douglas fir are used as structural members and in bridge and port construction.

Industry sources believe the Chinese view the quality of US logs as too high for sole use as mine props and rail ties, although some ties are cut from the center of the log. Those requirements are filled by lower quality Soviet log imports, which reached an estimated barter trade value of \$1 billion in 1984. Consisting mainly of

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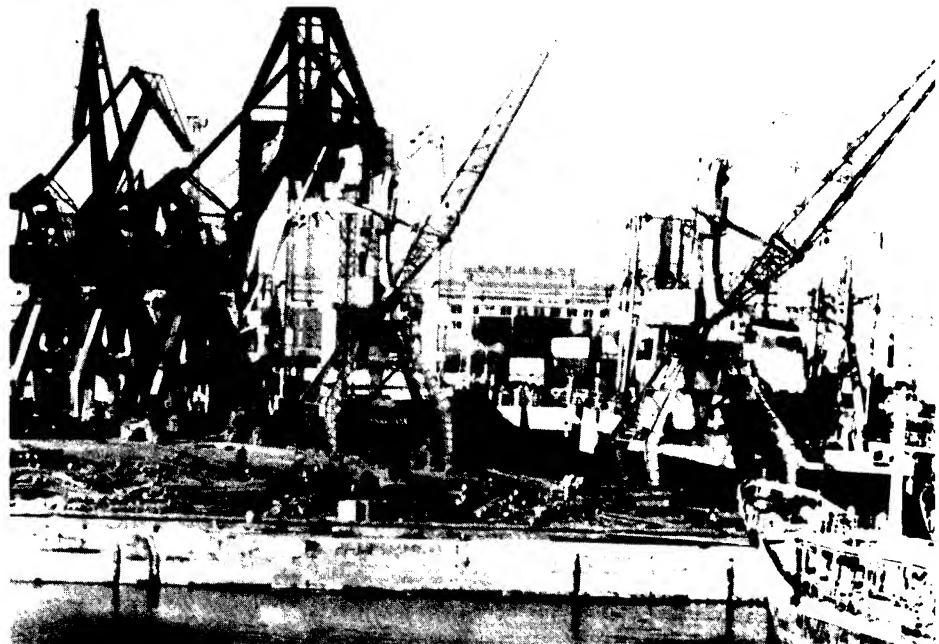
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**Figure 4.** Log stacker working haphazardly stacked logs in limited space at Xingang in early 1985 is an example of China's inadequate log-handling facilities. [redacted]



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**Figure 5.** In comparison, spacious facilities and orderly stacked logs are typical at US log-handling ports. [redacted]



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red fir, red pine, and spruce, these logs [redacted]

tend to

have irregular or crooked shapes, small diameters, and high growth-ring counts. [redacted]

Some short-length hardwood logs are imported from China's Asian neighbors; the bulk of these are used

for plywood and some furniture products. China imports only limited amounts of building lumber, for use mainly in new construction and as flooring materials. The United States shipped about 70,000 cubic meters of this type of lumber in 1984. [redacted]

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**Figure 6.** Each China-bound log is tagged and individually listed on all scaling documents. According to industry sources, China Timber Cooperation scalers frequently use the accompanying scaling documents to direct logs to Chinese sawmills because most Chinese scalers have had little, if any, experience with the Scribner board foot log-scaling rules used for US log grading.



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#### Exports to China: The Limiting Factors

Despite what appears to be a growing and long-term need for imported timber, several factors could constrain the growth of sales to China. The first is chronic congestion at Chinese ports. Poor scheduling of shipping, shallow drafts at many harbors, ongoing construction, inadequate storage facilities, and inland transport difficulties all contribute to the chronic port congestion. The Chinese press has reported improved turnaround times at a number of ports, but we believe much of the time saved is being lost by ships waiting for berthing space. Monthlong waits are not uncommon, and heavy port congestion, at times with over 100 ships waiting, has caused delays of 60 days or more.

In addition, most Chinese ports have inadequate log-handling and storage areas for a large volume of imported logs

[redacted] it takes 12 days or more to unload most log carriers, largely because storage areas cannot hold a shipload of logs. He also said that there are only two or three log stackers in China, although [redacted] notes that one port ordered eight log stackers from Japan in 1983.

Moreover, China has a very poor infrastructure for clearing logs from port areas. Poor coordination of

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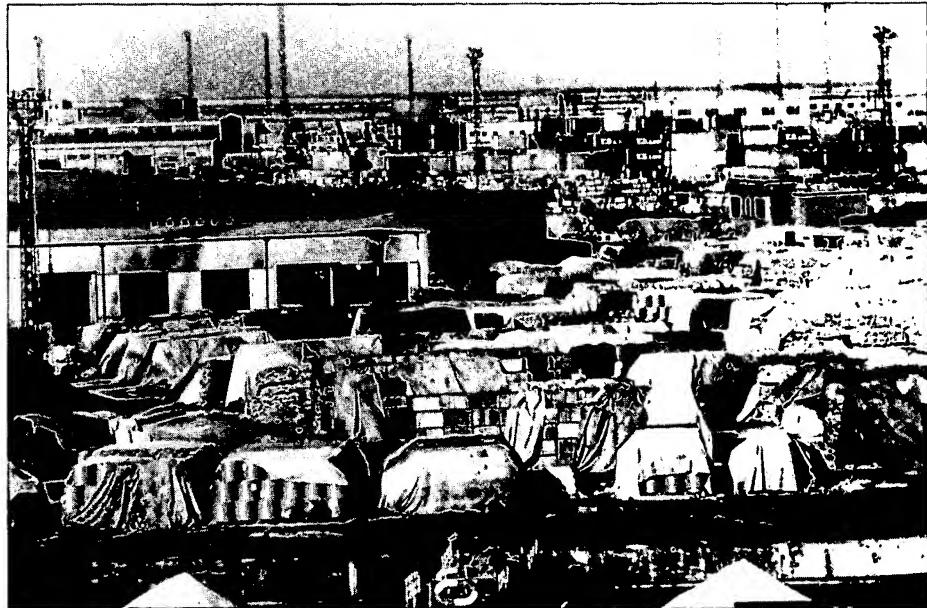
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*Figure 7. Linerboard being exposed to the elements because tarps are barely covering the rolls at Xingang port facility.*

[redacted]



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inland transport is one problem. [redacted] reported that over \$300,000 in demurrage was paid to one ship in early 1984 largely because inland transportation was not arranged in time. And, while water and rails are the main movers of inland shipments, Chinese railcars can only handle logs up to 12 meters in length, thereby establishing a maximum length for logs sold to China. [redacted]

A second factor that complicates exports to China is simple bureaucratic inefficiency. Over the past two years, government organizations dealing with timber imports have proliferated, forcing foreign dealers increasingly to work with inexperienced personnel and greater redtape. Until 1984, China National Native Produce and Animal Byproducts Import and Export Corporation (ChinaTUSHU) was the principal player in foreign timber transactions, controlling either directly or indirectly almost all imports of logs and sawed timber. TUSHU operates a central buying and inspection office for logs and other forest products destined for China in a Seattle suburb. [redacted]

Reports of unhappiness, both domestic and foreign, with TUSHU's operational methods—including charges that TUSHU was more concerned with meeting quotas and saving money than with obtaining

suitable logs—may have been responsible for a number of personnel changes that included the departure of personnel who had finally gained substantial experience in marketing practices and grading of logs in the Pacific Northwest. [redacted]

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At the same time, at least one powerful contender entered the market. Established in October 1979 as a ministry-level enterprise directly under the State Council, China International Trust and Investment Corporation (CITIC) now claims the right to enter into contracts for foreign log and timber sales.<sup>3</sup> CITIC currently has operations in Brazil, Indonesia, and Washington state and has formed a US-based joint venture—CITIFOR—with a US company. [redacted]

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[redacted] expects the CITIC-CITIFOR operations in Washington state to supply 25 percent of China's log imports from the Pacific Northwest in 1985. [redacted]

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<sup>3</sup> In China, CITIC is involved in a number of joint ventures with foreign partners and, in specific cases, has authority to buy imported forest products. For example, CITIC supplied the lumber and plywood for construction of the Jianguo Hotel in Beijing. [redacted]

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**PRC Port Modernization**

*Although modernization and new berth construction have raised the overall capacity of China's ports, the ports have been unable to handle efficiently the increased shipments of US logs and wood products. According to recent claims, mechanized equipment can now handle some 80 percent of all loading and unloading operations. Most log berths, however, have experienced little, if any, increase in mechanization.*

*The Chinese prefer to unload logs in 2- to 3-ton increments with shore-based cranes rather than use the more efficient ship's cranes. The lack of specialized log stackers and forklift trucks for moving logs within port areas, moreover, probably has kept the Chinese from "preslinging" the logs, which permits a considerable gain in time and efficiency. US west coast ports can ship "preslung" logs in 20- to 25-metric-ton bundles, greatly reducing unloading time in countries with modern ports.*

*China is counting on completing construction on 120 deepwater berths by 1990, but only a few of these have been identified as timber berths. China's official news agency reports the port at Ningbo has scheduled construction of a timber berth to be completed by 1990. The berth, capable of handling a 100,000-deadweight-ton (dwt) timber carrier, will become China's largest timber berth. Yantai port is planning to complete a 25,000-dwt timber berth, also by 1990. Most Chinese ports have at least one timber berth capable of handling a 20,000-dwt ship. US log shippers have a working agreement with China's log buyers to load a log carrier to no more than a 9.5-meter draft, which roughly equates to a 20,000-dwt ship loaded with 4.5-5.0 million board feet of logs.*

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Other organizations authorized to deal with foreign timber suppliers include the China Forestry International Engineering Company—established in February 1984—which conducts economic and technological projects in cooperation with foreign countries and, like CITIC, has authority to form joint ventures

abroad. The China Timber Corporation (CTC), subordinate to the State Bureau of Materials and Equipment, until recently controlled most of China's sawmills and also inspected imported logs and directed their delivery to specific sawmills.<sup>4</sup> In April, however,

[redacted] provincial timber corporations and their subsidiaries were no longer under the control of CTC in Beijing, but instead have the option of consuming or selling logs locally [redacted]

A Chinese Ministry of Commerce [redacted]

[redacted] in February 1985, indicated their ministry also planned on becoming more involved in the allocation of domestic and imported commodities in rural areas, while the Ministry of Light Industry, which operates most of China's paper and pulp mills, has responsibility for importing most wood products. At times, other Chinese organizations become involved with log or wood product imports. China North Industries Corporation (NORINCO), a trade organization under the Ministry of Ordnance Industry, imports wood for use in manufacturing ordnance storage containers. The Ministry of Railways buys rail ties direct from the United States. [redacted]

A third factor that will constrain the growth of timber sales to China is Beijing's resistance to expanding wood product purchases, especially lumber.<sup>5</sup> The Chinese prefer importing logs—even though a ship can carry three times more board feet of lumber than logs—largely because of the number of people that sawmills keep employed. The Beijing sawmill, for example, employs 2,200 Chinese, whereas a similar

<sup>4</sup> Reportedly, China Timber Corporation is subordinate to the State Bureau of Materials and Equipment, which is directly subordinate to the State Council. However, the bureau appears to be known by a number of names. [redacted]

<sup>5</sup> Imports of other wood products such as linerboard and woodpulp, though higher than lumber in total purchases, have been on the decrease since 1981. Chinese purchases of US wood products have accounted for less than 2 percent of worldwide annual US sales of these products since 1981 (see figure 8). [redacted]

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**CITIC Operations in Washington State**

Last fall, CITIC began acquiring stumppage in Washington state. In August 1984, CITIC purchased a tract of standing timber containing approximately 50-60 million board feet in the Tacoma area. By November 1984, CITIFOR had acquired two more tracts containing 349 million board feet on the Olympic peninsula.

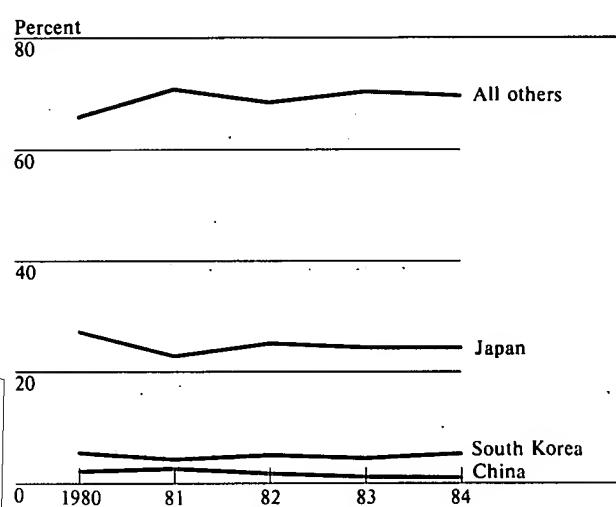
CITIC began logging its initial purchase almost immediately; the first shipment of logs was on its way to China by December. Only four shipments had been made by April 1985.

US sawmill would have approximately 150 workers. Moreover, the overrun materials—scraps, bark, and sawdust—are all used by the Chinese.

Similarly, China does not want to import treated railway ties because they cost 50 to 60 percent more than untreated ties. But China's plans to increase purchases of untreated ties from the United States have slipped largely because of inadequate tie treatment capacity. China has only eight "retorts" for vacuum drying and pressure treating ties.<sup>6</sup>

<sup>6</sup> The Ministry of Railways purchased a number of untreated railway ties from the United States over the last two years. The first order for 8.5 million board feet was a direct deal between the Ministry of Railways and a US company. A second order for 40 million board feet was placed through a Hong Kong company, which subcontracted to its US subsidiary, which further subcontracted to other US firms.

**Figure 8**  
**US Wood Product Exports<sup>a</sup> to Selected Countries, 1980-84<sup>b</sup>**



<sup>a</sup> Includes linerboard, woodpulp, lumber, and so forth.

<sup>b</sup> Calculated from US \$ value, f.o.b.

Source: US Bureau of Census, Standard International Trade Classification, Revision II.

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**Implications for US Sales**

Although these factors will limit the range of products sold and complicate negotiations and deliveries, we expect the market for US logs to continue expanding through the end of the century:

- Although recent changes in the management of afforestation and cutting will eventually yield higher per hectare yields than existing stands, China's critical shortage of harvestable timber will not be alleviated for decades.

- The success of China's economic modernization program depends in large part on improved transportation facilities, an increased supply of energy, and continuing availability of funds derived from growing exports. Logs and wood products play a key role in each of these growth components.

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- There are no serious competitors for US logs for the China market. The Soviet Union, which sells about one-quarter as many logs to China as the United States, has some high-quality timber, but log quality is reduced through poor harvesting techniques and in rough handling during transport. Canada, although it has enormous timber resources, is often viewed by foreign buyers as an unreliable source of logs because of shipping and export practices.<sup>7</sup>
- Although China has resisted US industry efforts to expand lumber sales to China, US and other foreign companies believe they can make some inroads in the wood products market by establishing joint ventures in China. A recently established joint venture with the Philippines, for example, will produce plywood and at least initially provide the Philippines with some export opportunities.

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log-loading facilities last March focused on design technology and equipment needs at modern log-handling facilities, suggesting that China is planning to build a number of additional log berths. The Chinese probably will also consider the purchases of additional log stackers and forklift trucks for moving logs within existing ports. [redacted]

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On balance, we look for a growing market, but one that will expand more slowly in the future as China rebuilds its own forests and establishes wood product industries. And, although we do not expect log sales to become the single most important commodity export to China, we look for them to at least partially offset the drop in grain sales over the next few years. [redacted]

- [redacted] China's continuing dependence on imported timber will prevent the timber trade from becoming a political pawn as has been the case with the US-Chinese grain and textile trades. Moreover, timber shipments are not likely to become a maritime issue. The high volume of grain moving in Chinese-controlled bottoms contributed heavily to the failure of the Sino-US Maritime Agreement in 1983. Largely because of a lack of suitable US or Chinese vessels, however, most US logs are transported to China on third-flag carriers (see appendix A). [redacted]

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China's drive both to replant its own forests and increase timber purchases, moreover, presents opportunities for associated sales. The Chinese, for example, are seeking foreign assistance to expand and improve plantation plantings and forest nurseries. In addition, China's port modernization program will require foreign equipment and technological assistance. A group of Chinese port officials visiting US

<sup>7</sup> Most of Canada's timber resources are owned by the Crown, which requires an export permit valid for only 90 days. Canadian logs, which are mainly transported by river and coastal rafts of about 5 million board feet each, are advertised for sale only after the raft is formed. At this time, Canadian sawmills can buy the raft at the going price for domestic sawmill logs, in effect removing the raft from the export market. [redacted] because of this practice, foreign buyers view Canada as an unreliable source of logs. [redacted]

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## Appendix A

### The Role of Chinese Vessels in Timber Trade

Chinese vessels have a less significant role in the US-Chinese wood product and timber trade than they played in the grain trade, where the high volume of grain moving in Chinese-controlled bottoms contributed heavily to the failure of the US-Chinese Maritime Agreement in December 1983. One of China's maritime objectives is to carry as much of its foreign trade in Chinese bottoms as possible. Thus the Chinese tend to export on a cost, insurance, and freight (c.i.f.) basis and to import on a free on board (f.o.b.) basis. China's claim that 70 percent of its foreign trade moves on China Ocean Shipping Company (COSCO) vessels is, in our view, accurate. The failure of the US fleet to get the one-third share of the US-Chinese trade called for in the now-expired maritime agreement is evidence of China's strong effort to carry as much of its foreign trade cargoes in Chinese ships as possible. In 1983, the US fleet, in fact, managed to carry only 15 to 16 percent of the bilateral liner cargoes and a negligible amount of the bulk cargoes. Since then, the maritime interests of both countries have been operating without an agreement.

Unlike other portions of the US-Chinese trade, most of the log and wood product trade moves on a c.i.f. basis with the US shipper selecting the carrier—in most cases, a third-flag carrier. US log-exporting firms or agents attempt to schedule the arrival of a ship in a US port to coincide closely with delivery of the last load of logs at the dock. With the high interest rates of the past few years, firms tend to avoid building up log inventories until close to ship arrival time. Industry and port officials report there now are times when logs cut in the morning are loaded on a ship in the afternoon.

Although China's merchant fleet has added modern timber carriers, they have not been overly active in the US-Chinese log trade. COSCO vessels carry almost no logs (see table). In 1983, COSCO's best year, over a third of the volume in logs consisted of railway ties and these were carried on two trips by a 14,000-deadweight-ton roll-on/roll-off cargo ship. In the wood product trade, COSCO did slightly better, carrying 6 percent of trade volume in 1983 and 1984, well below the 25 percent it carried in 1982.

#### COSCO Liner Vessels in the US-Chinese Timber Trade

Percent

Logs		Wood Products	
Volume	Shipments	Volume	Shipments
1984	0	6.13	27.03
1983	1.36	8.26	25.71
1982	0.36	2.15	30.10
1981	NEGL	3.33	10.48
1980	0	0	0

Source: Port Import Export Retrieval System (PIERS) Journal of Commerce.

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Third-party tramp and bulk service (charter) vessels carried an average of 65 percent of the volume of US-Chinese log trade or 57 percent of the shipments and an average of 76 percent of volume or 46 percent of shipments of wood products over the past five years. Third-party liner or scheduled services carry most of the remaining trade. In 1984, approximately 200 timber carriers, carrying an average cargo load per vessel of 4.5 million board feet or 17.5 thousand cubic meters of US logs, were involved in the US-Chinese log trade.

this generally is a one-way trade because less than 10 percent of timber carriers obtained a back-haul cargo. Like the Chinese, US-flag operators carry virtually none of the US-Chinese trade in log and wood products, largely because of a lack of suitable vessels. Except for COSCO's brief entry into the liner trade in 1982, shippers generally are avoiding COSCO ships because,

these ships are inefficient and often delayed unexpectedly.

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## Appendix B

### Distribution of Logs and Wood Product Imports

US logs and wood products were unloaded at 10 of China's 15 major seaports and at two Yangtze River (Chang Jiang) ports in 1984.<sup>8</sup> The distribution of logs, however, varied widely along the coast. Shanghai, near the mouth of the Yangtze River, and Nantong and Zhangjiagang in the river's lower reaches, handled approximately 50 percent of 1984 US log imports (see figure 9). US log imports accounted for about 2 percent of total volume handled at each of the three ports. Assuming volume was split evenly between imports and exports, US log imports made up about 4 percent of import volume at these ports. These ports also handle log imports from other countries including the USSR. [redacted]

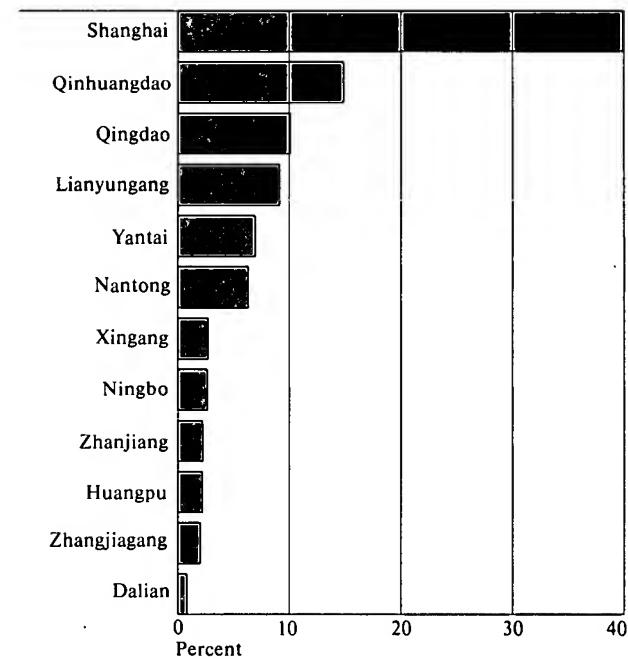
Qinhuangdao and Xingang, two ports in close proximity to Beijing, handled 14.9 and 2.7 percent, respectively, of US log imports. Covering the coastal area between Beijing and Shanghai, the ports of Yantai, Qingdao, and Lianyungang together handled 26 percent of US log imports. Lianyungang's fourth-place ranking as a US log importer probably stems more from its function as the eastern terminus of China's major east-west rail line than as a major industrial city. In contrast, the river ports of Nantong and Zhangjiagang, now being developed to lighten the traffic load on Shanghai, can supply the edges of Shanghai's industrial complex as well as transship logs upriver. Nantong's importance as a timber importer would increase if [redacted] a joint-venture sawmill [redacted]

[redacted] becomes operational near the port. US industry sources report US logs are distributed along the length of the Yangtze with some logs going as far inland as sawmills in Sichuan Province. [redacted]

In 1984, only five of the 12 above log ports handled US wood products, and these mostly of low volume compared with logs (see figure 10). Huangpu, in South China, was the exception, handling nearly equal

<sup>8</sup> The Ministry of Communications lists 15 major seaports: Dalian, Yingkou, Qinhuangdao, Tianjin (Xingang), Yantai, Qingdao, Lianyungang, Shanghai, Ningbo, Shantou, Huangpu, Zhanjiang, Haikou, Basuo (Dongfang), and Sanya (Yaxian) [redacted]

**Figure 9**  
**China: Imports of US Logs, 1984<sup>a</sup>**



<sup>a</sup> Volume by port.

Source: Port Import Export Retrieval System (PIERS) Journal of Commerce

[redacted]  
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shares of log and wood products. In addition, 3.0 percent of US wood products imported by China were transshipped through Hong Kong (see figure 11). Another 1.7 percent of US wood products, shipped mostly in small lots, was transshipped through other foreign ports. Because only the country of destination is entered on US customs documents, transshipments cannot be linked to specific Chinese ports. [redacted]

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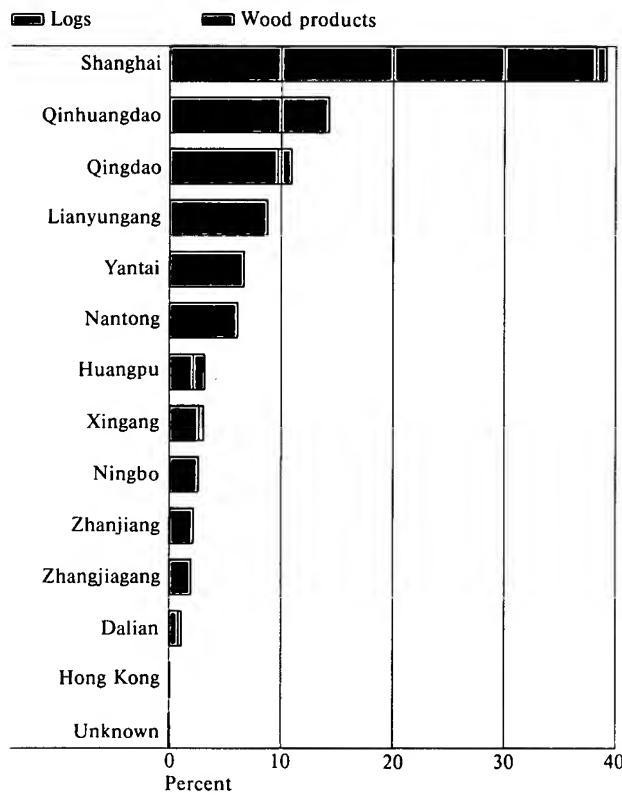
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**Figure 10**  
**China: Imports of US Log and Wood Products, 1984<sup>a</sup>**



<sup>a</sup> Volume by port.

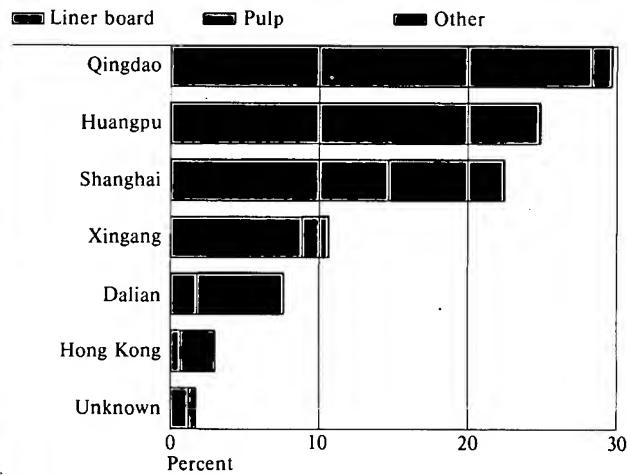
Source: Port Import Export Retrieval System (PIERS) Journal of Commerce

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In the wood products area, China mainly imported kraft linerboard and woodpulp from the United States in 1984. And linerboard shipments—80 percent of total wood products—far surpassed those of pulp. Only five of China's seaports handled US linerboard imports in 1984. Moreover, the bulk of linerboard, 95 percent, was unloaded at only four of these ports—Qingdao, Huangpu, Shanghai, and Xingang. Like logs, a small amount of linerboard was transshipped through Hong Kong and other foreign ports. Most of

**Figure 11**  
**China: Imports of US Wood Products, 1984<sup>a</sup>**



<sup>a</sup> Volume by port.

Source: Port Import Export Retrieval System (PIERS) Journal of Commerce

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the miscellaneous wood products such as finished lumber and flooring were transshipped through Hong Kong with negligible amounts going directly to a Chinese port.

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## Appendix C

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### Characteristics of US Log Exports to Selected Pacific Rim Countries, December 1984

	Price, f.a.s. <sup>a</sup> <i>(per thousand board feet)</i>	Standards of Second Growth Log <sup>b</sup>	Minimum Sawmill Grade	Lumber Grade Produced
South Korea	\$280	K-sort—low-quality log still of export quality, mostly hemlock. Log of rough nature—showing bark scars and fresh knot indicators where limbs were broken or cut off. Diameter—8 inches and up. Length—20 to 40 feet, average 34 feet. Averages 150 to 180 BF <sup>c</sup> per log.	3 or better	Standard and better grade lumber defects not to exceed 15 percent of gross <sup>d</sup> scale.
China	\$295 to \$300 <sup>e</sup>	C-sort—middle-quality log, mostly Douglas fir. Clear, smooth log, knot indicators where limbs are partially healed or smoothly cut. Diameter—12 inches and up; allowing up to 10 percent 8 to 11 inches. Length—20 to 40 feet, average 35 feet. Averages 280 to 300 BF per log.	Allowing up to 90 percent grade 2 and 10 percent grade 3	Construction and better grade lumber in amounts of not less than 65 percent of net <sup>f</sup> scale, or B grade and better lumber in amounts of not less than 25 percent of net scale.
Japan	\$325 <sup>e</sup>	High-quality Douglas fir log. Slick, smooth log, looks better than C-sort, knot indicators healed over where limbs were. Annual ring count—six or more per inch. Diameter—12 inches and up for grade 2; J-sort, 8 to 11 inches for grade 3. Length—20 to 40 feet, average 36 feet or better. Averages 320 to 350 BF per log.	2 or better; some 3	Construction and better grade lumber in amounts greater than that produced by C-sort.

<sup>a</sup> f.a.s.—free alongside ship.<sup>b</sup> Logs are sorted by standards agreed to by the foreign buyers and the US log suppliers.<sup>c</sup> BF—board feet (Scribner).<sup>d</sup> Gross scale—Scribner board foot volume before deduction for defects.<sup>e</sup> Price differences also are partly explained by the fact China buys in bulk.<sup>f</sup> Net scale—Scribner board foot volume minus deductions for defects.

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*Figure 12. Rough, knotty  
K-sort logs stacked for export  
to South Korea.* [redacted]



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*Figure 13. Smoother quality  
C-sort logs destined for China.  
J-sort logs would be similar in  
appearance.* [redacted]



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